

Flight Report – SEAC4RS ER-2, September 18, 2013

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Purpose of flight: The science goals for this flight were to: 1) acquire remote sensing data of marine cirrus and marine convective clouds coordinated with the Lear Jet and DC8, 2) acquire remote sensing data of continental cirrus and convective clouds coordinated with the Lear Jet and DC8, 3) perform a dip to measure convective influence in the UT/LS, and 4) perform level legs for measurements of aerosols over AERONET sites in the Houston vicinity and above the DC8 tracks.

Pilot: Denis Steele

Takeoff: 9:00 CDT

Duration: 7.87 hours

Notes:

The ER2 first flew SE over the Gulf to set up for a leg over cirrus and the DC8 track. The ER2 flew a 300 km leg northwest over this broken cirrus and the DC-8 track. (The DC-8 had flown over this leg about 30-40 minutes prior to the ER-2.) The ER2 then flew southwestward toward a point identified by the Lear Jet and DC-8 as being optimal for studying convection and cirrus. There was excellent coordination between the DC-8 and ER-2 pilots; the ER-2 pilot, Denis Steele did an excellent job of reacting to the changes developed by the Lear Jet and DC-8 scientists. The ER-2 then performed a 150 km leg racetrack above the cirrus and the other aircraft. There was very good coordination among the aircraft along this racetrack as well as the next racetrack that was location over Texas. The ER-2 pilot again adjusted the racetrack location slightly to optimize coordination with the DC8 and Lear Jet. The ER-2 flew this racetrack two times and had excellent coordination with the Lear Jet. This will be a very good case to compare the ER-2 remote sensing retrievals of cirrus and the Lear Jet in situ measurements of cirrus clouds. After this the ER-2 performed a small climb from 63 kft to 65 kft before the final portion of the plan. In this final portion, the ER-2 flew a series of 150 km zig-zag legs that were designed to overfly the DC-8 legs over Houston, the region downwind, northwest of Houston, and the dense AERONET network in this region. Skies were partly cloudy with scattered cirrus and cumulus clouds, but there were enough gaps for some AERONET aerosol optical thickness measurements. The ER-2 performed a spiral over EFD before landing.

Aircraft and instruments: All instruments appear to have worked nominally as far as limited in-flight and quick-look analyses showed. All instruments are ready for the next flight.

ER-2 Flight for Wednesday September 18

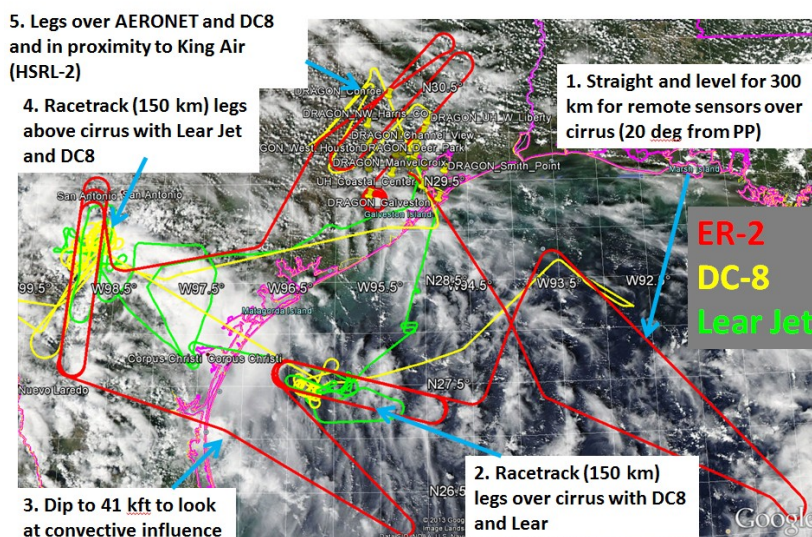


Figure 1. Flight tracks of ER-2, DC-8, and Lear Jet from September 18 on Aqua MODIS image.